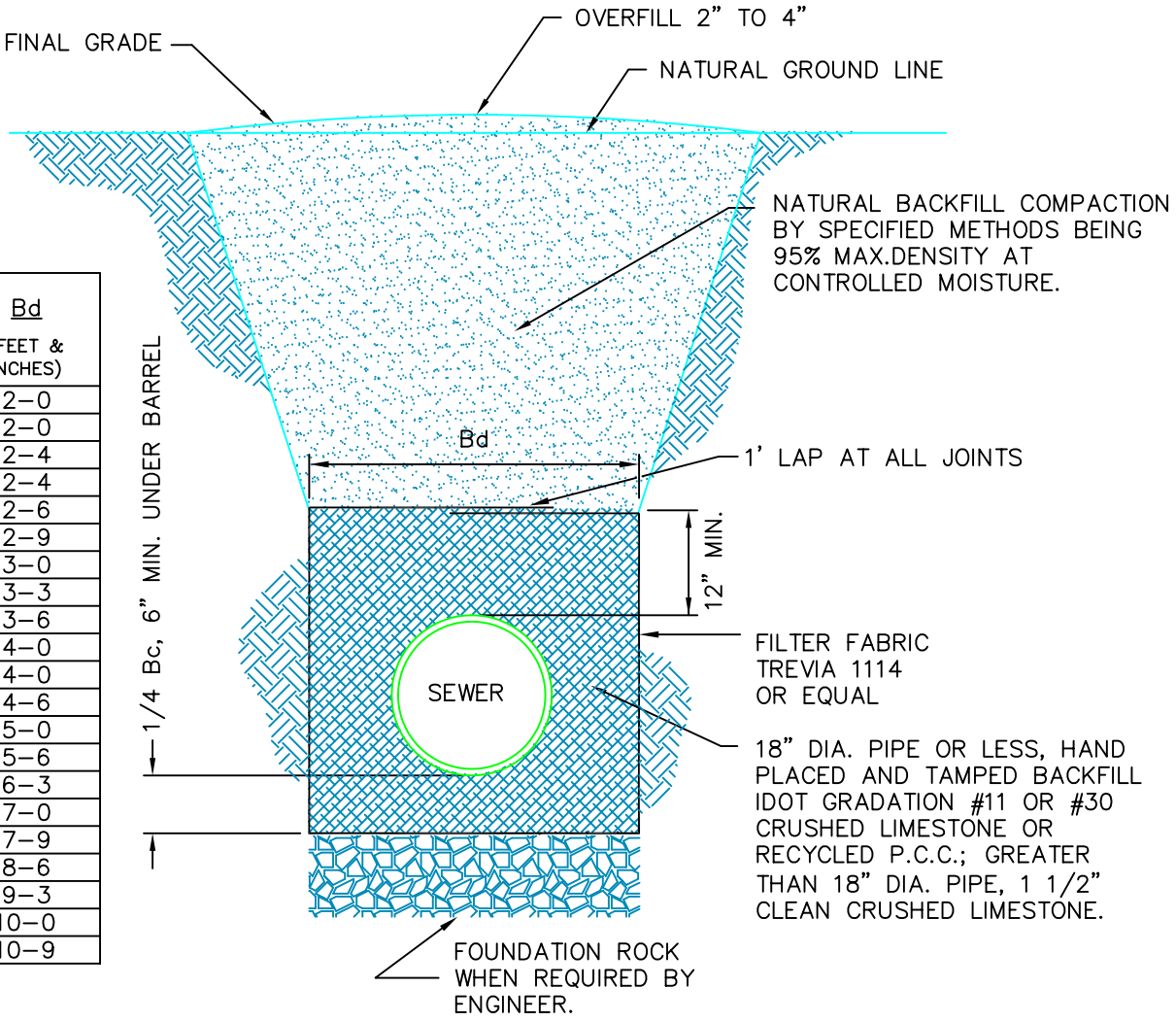
CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11-08-02
REVISION



SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2-0
6	2-0
8	2-4
10	2-4
12	2-6
15	2-9
18	3-0
21	3-3
24	3-6
27	4-0
30	4-0
33	4-6
36	5-0
42	5-6
48	6-3
54	7-0
60	7-9
66	8-6
72	9-3
78	10-0
84	10-9

GENERAL NOTES:

1.) PIPE MATERIAL SHALL BE PVC AND ABS MEETING MINIMUM ASTM 2412 PIPE STIFFNESS 46 TO 150 PSI.

2.) MANUFACTURED BACKFILL EQUIVALENT TO CLASS I ASTM 2312

3.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.

4.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.

5.) IN UNSTABLE SOIL CONDITIONS AT DIRECTION OF ENGINEER FILTER FABRIC ENVELOPE AND 1 1/2" CLEAN CRUSHED LIMESTONE MATERIAL WILL BE REQUIRED.

6.) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

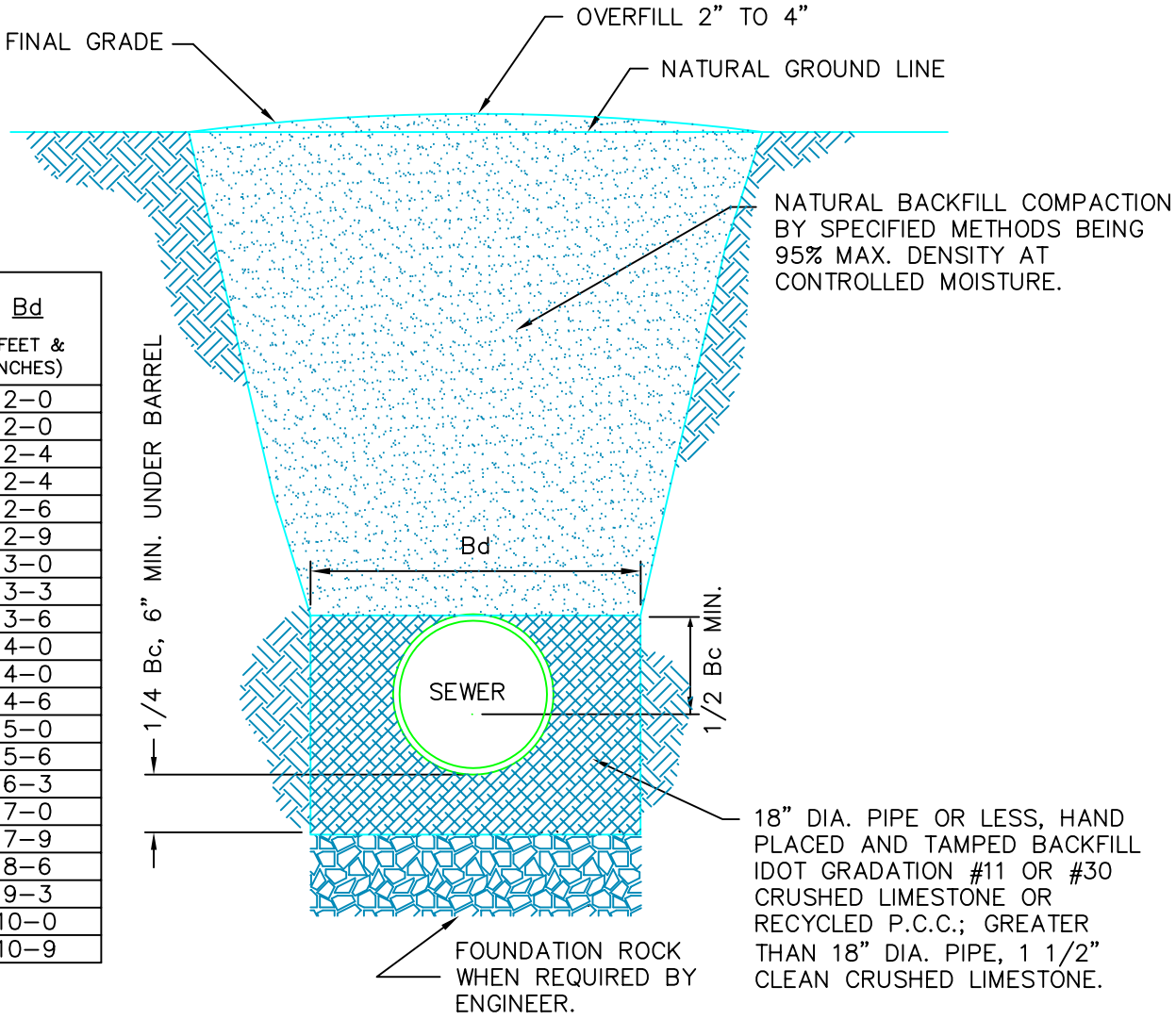
PVC AND ABS GRAVITY SANITARY PIPE ENVELOPE AND TRENCH DETAIL

NO SCALE:

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
8-19-96

REVISION
1-29-99



SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2-0
6	2-0
8	2-4
10	2-4
12	2-6
15	2-9
18	3-0
21	3-3
24	3-6
27	4-0
30	4-0
33	4-6
36	5-0
42	5-6
48	6-3
54	7-0
60	7-9
66	8-6
72	9-3
78	10-0
84	10-9

NOTES:

1.) PIPE MATERIAL SHALL BE PVC AND ABS MEETING MINIMUM ASTM 2412 PIPE STIFFNESS 46 TO 150 PSI.

2.) MANUFACTURED BACKFILL EQUIVALENT TO CLASS I ASTM 2312

3.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.

4.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.

5.) TWO FOOT MINIMUM CONSTRUCTION COVER REQUIRED AND SHALL BE MEASURED FROM THE TOP OF GRADE TO THE TOP OF THE SEWER PIPE.

6.) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

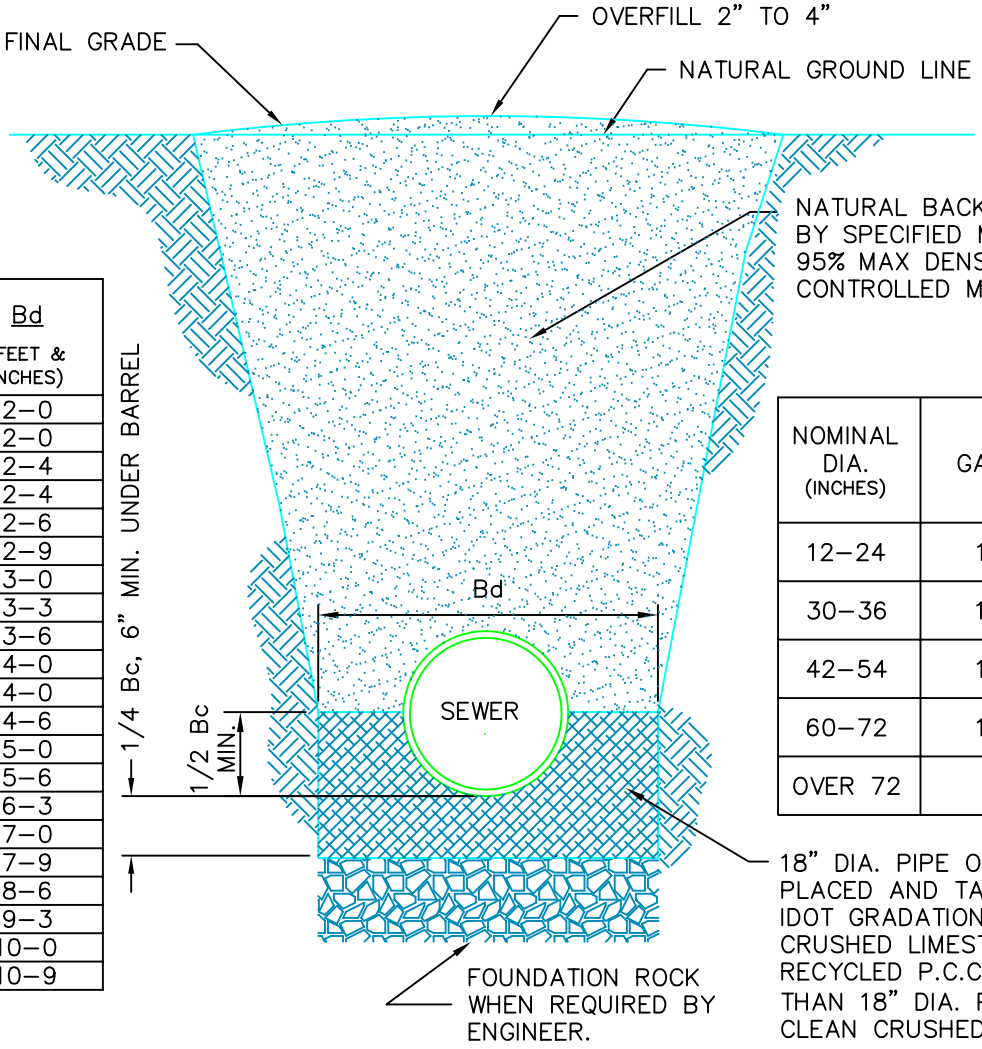
PVC AND ABS GRAVITY STORM PIPE ENVELOPE AND TRENCH DETAIL

NO SCALE:

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11–08–02

REVISION
1–29–99



SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2–0
6	2–0
8	2–4
10	2–4
12	2–6
15	2–9
18	3–0
21	3–3
24	3–6
27	4–0
30	4–0
33	4–6
36	5–0
42	5–6
48	6–3
54	7–0
60	7–9
66	8–6
72	9–3
78	10–0
84	10–9

NOMINAL DIA. (INCHES)	GAGE	SHEET THICKNESS (INCHES)
12–24	16	.064
30–36	14	.079
42–54	12	.109
60–72	10	.138
OVER 72	8	.168

NOTES:

1.) MINIMUM ASTM 2412 PIPE STIFFNESS 50 PSI.
   A) SIZE 12–72", CORRUGATIONS 2 2/3" X 1/2" ANNULAR OR HELICAL.
   B) SIZE 84–144", CORRUGATIONS 3" X 1" ANNULAR OR HELICAL.
2.) MANUFACTURED BACKFILL EQUIVALENT TO CLASS I ASTM 2312
3.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.
4.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.
5.) TWO FOOT MINIMUM CONSTRUCTION COVER REQUIRED AND SHALL BE MEASURED FROM THE TOP OF GRADE TO THE TOP OF THE SEWER PIPE.
6.) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

CMP ALUMINIZED STORM PIPE ENVELOPE AND TRENCH DETAIL

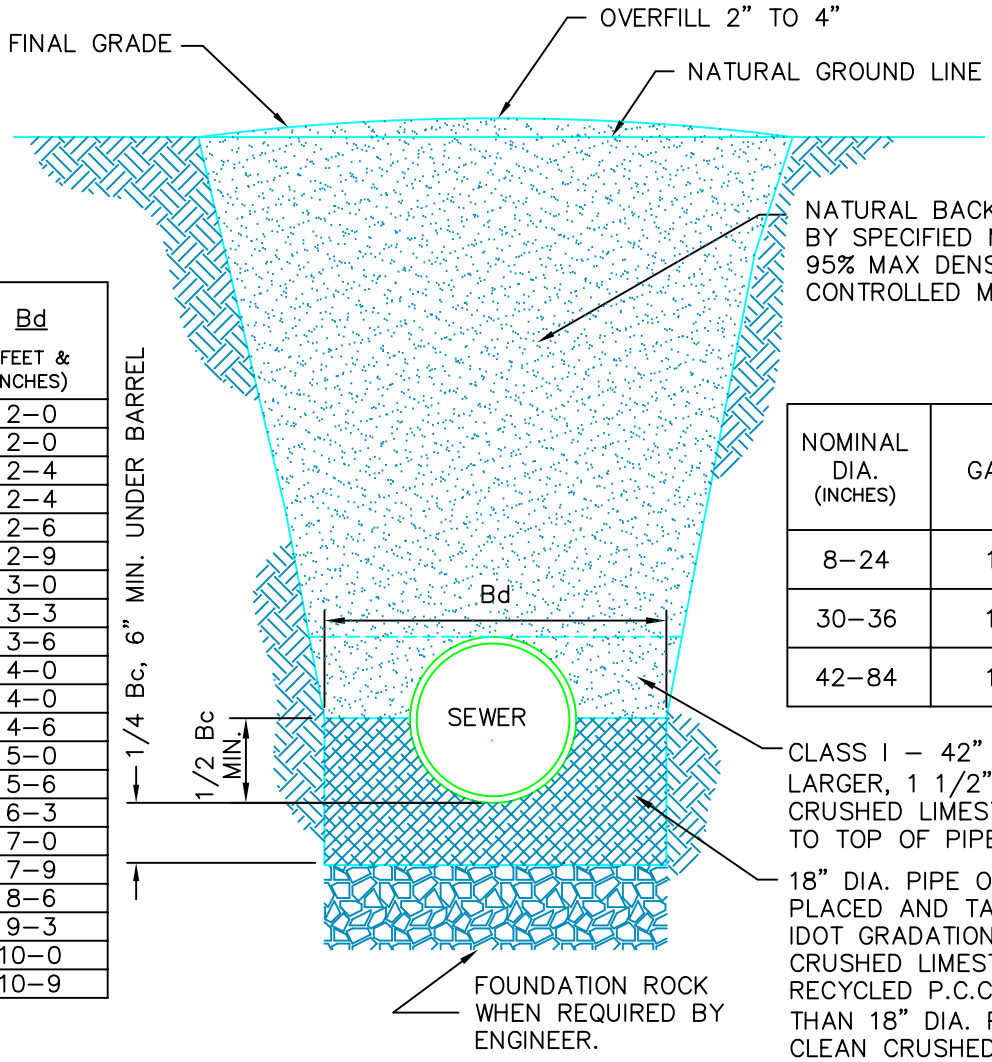
NO SCALE:

SHEET 30F7

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11-08-02

REVISION
1-29-99



SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2-0
6	2-0
8	2-4
10	2-4
12	2-6
15	2-9
18	3-0
21	3-3
24	3-6
27	4-0
30	4-0
33	4-6
36	5-0
42	5-6
48	6-3
54	7-0
60	7-9
66	8-6
72	9-3
78	10-0
84	10-9

NOMINAL DIA. (INCHES)	GAGE	SHEET THICKNESS (INCHES)
8-24	16	.064
30-36	14	.079
42-84	12	.109

NOTES:

1.) MINIMUM ASTM 2412 PIPE STIFFNESS 50 PSI, HELICAL CORRUGATIONS 3/4" X 3/4" X 7 1/2".

2.) MANUFACTURED BACKFILL EQUIVALENT TO CLASS I ASTM 2312

3.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.

4.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.

5.) TWO FOOT MINIMUM CONSTRUCTION COVER REQUIRED AND SHALL BE MEASURED FROM THE TOP OF GRADE TO THE TOP OF THE SEWER PIPE.

6.) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

CMP ALUMINIZED STORM PIPE ENVELOPE AND TRENCH DETAIL (ULTRA FLO)

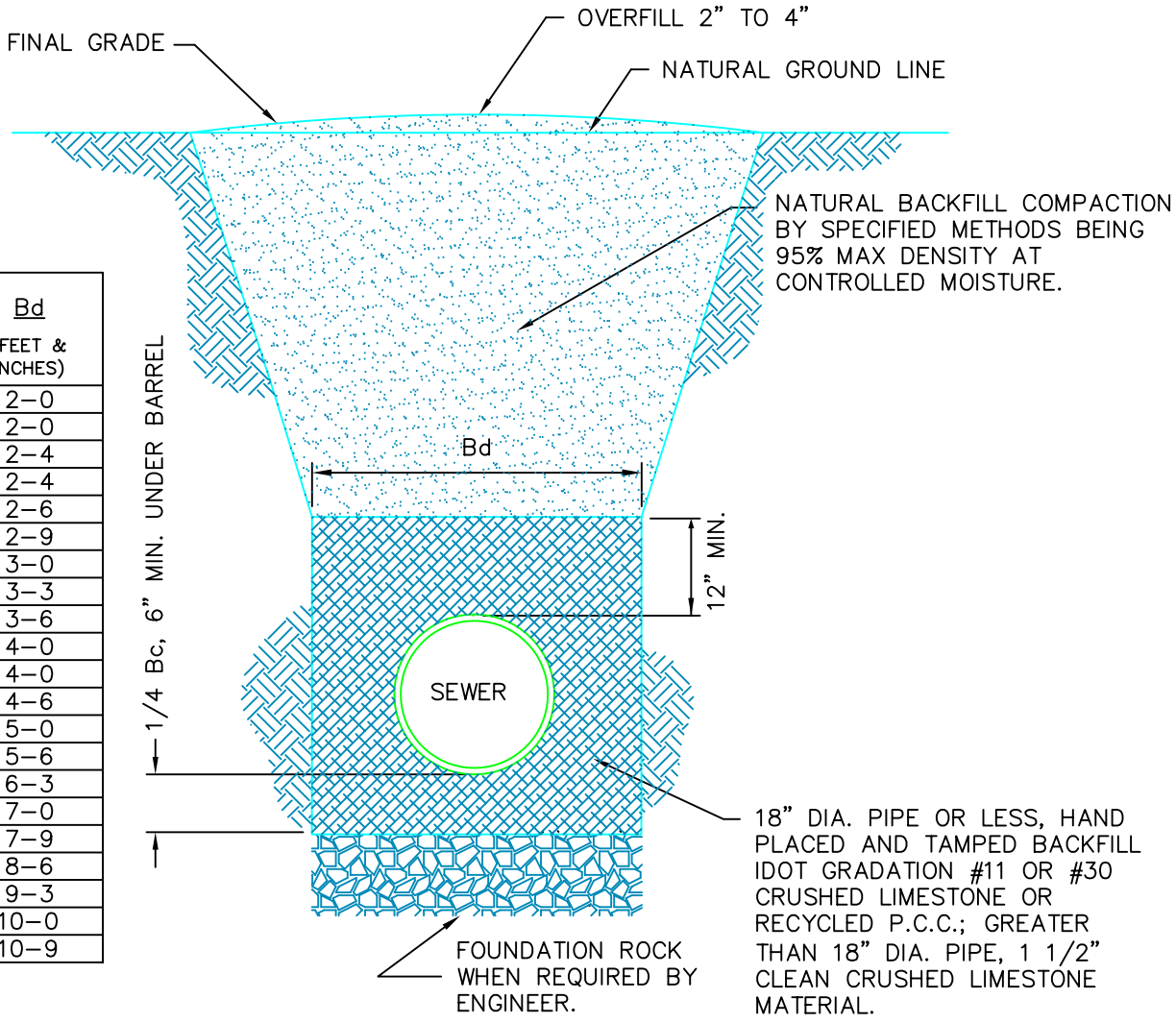
NO SCALE:

SHEET 4OF7

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11-08-02

REVISION
1-29-99



SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2-0
6	2-0
8	2-4
10	2-4
12	2-6
15	2-9
18	3-0
21	3-3
24	3-6
27	4-0
30	4-0
33	4-6
36	5-0
42	5-6
48	6-3
54	7-0
60	7-9
66	8-6
72	9-3
78	10-0
84	10-9

NOTES:

1.) MINIMUM ASTM 2412 PIPE STIFFNESS 30 PSI.

2.) MANUFACTURED BACKFILL EQUIVALENT TO CLASS I ASTM 2312

3.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.

4.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.

5.) TWO FOOT MINIMUM CONSTRUCTION COVER REQUIRED AND SHALL BE MEASURED FROM THE TOP OF GRADE TO THE TOP OF THE SEWER PIPE.

6.) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

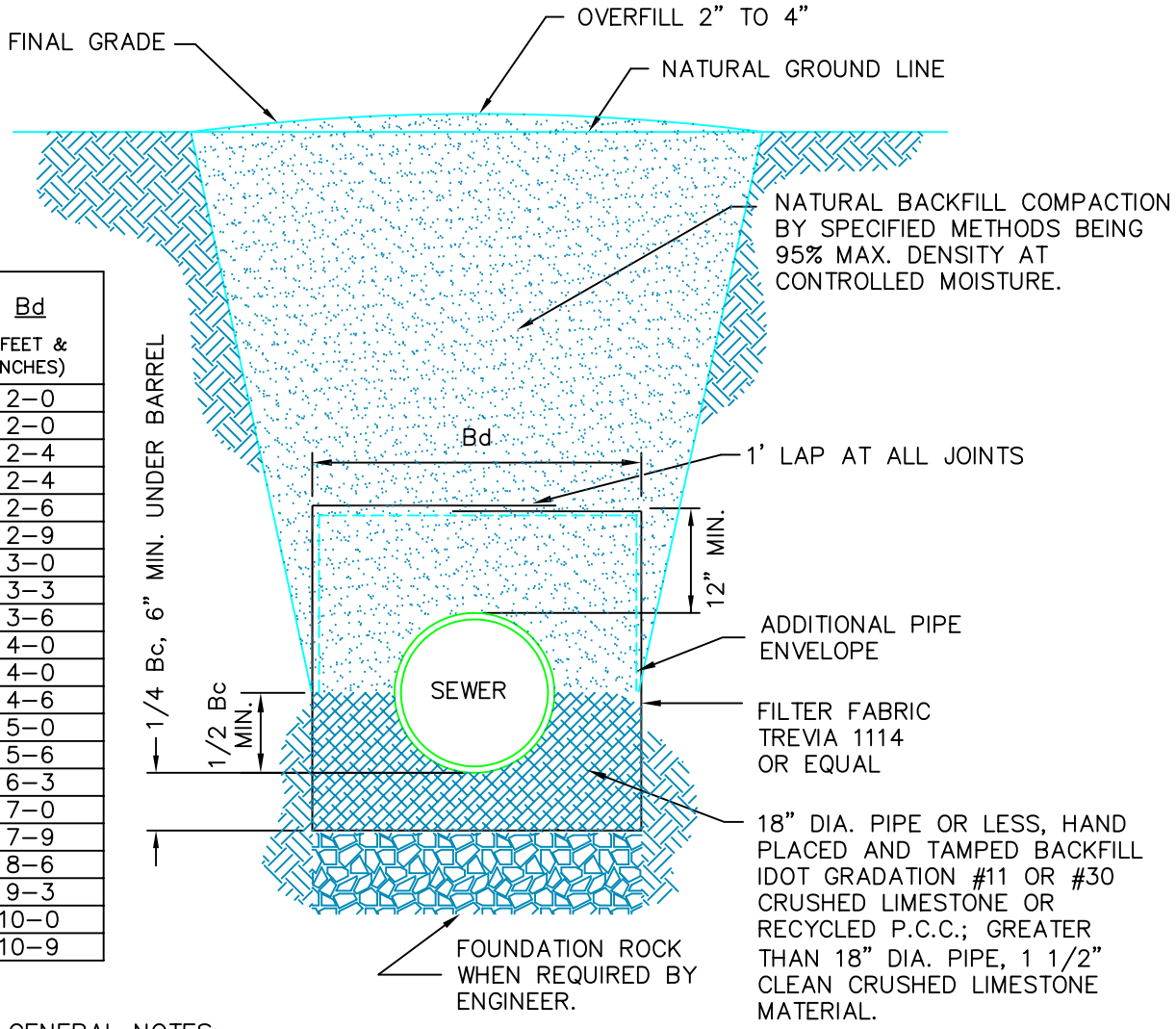
HDPE GRAVITY STORM PIPE ENVELOPE AND TRENCH DETAIL

NO SCALE:

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11-08-02

REVISION
1-29-99



SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2-0
6	2-0
8	2-4
10	2-4
12	2-6
15	2-9
18	3-0
21	3-3
24	3-6
27	4-0
30	4-0
33	4-6
36	5-0
42	5-6
48	6-3
54	7-0
60	7-9
66	8-6
72	9-3
78	10-0
84	10-9

GENERAL NOTES:

1.) MINIMUM ASTM 2412 PIPE STIFFNESS 151 TO 650 PSI.

2.) MANUFACTURED BACKFILL EQUIVALENT TO CLASS I ASTM 2312

3.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.

4.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.

5.) IN UNSTABLE SOIL CONDITIONS AT DIRECTION OF ENGINEER FILTER FABRIC ENVELOPE AND 1 1/2" CLEAN CRUSHED LIMESTONE MATERIAL WILL BE REQUIRED FOR SANITARY PIPE ENVELOPE.

6.) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

PVC AND ABS TRUSS PIPE ENVELOPE AND TRENCH DETAIL

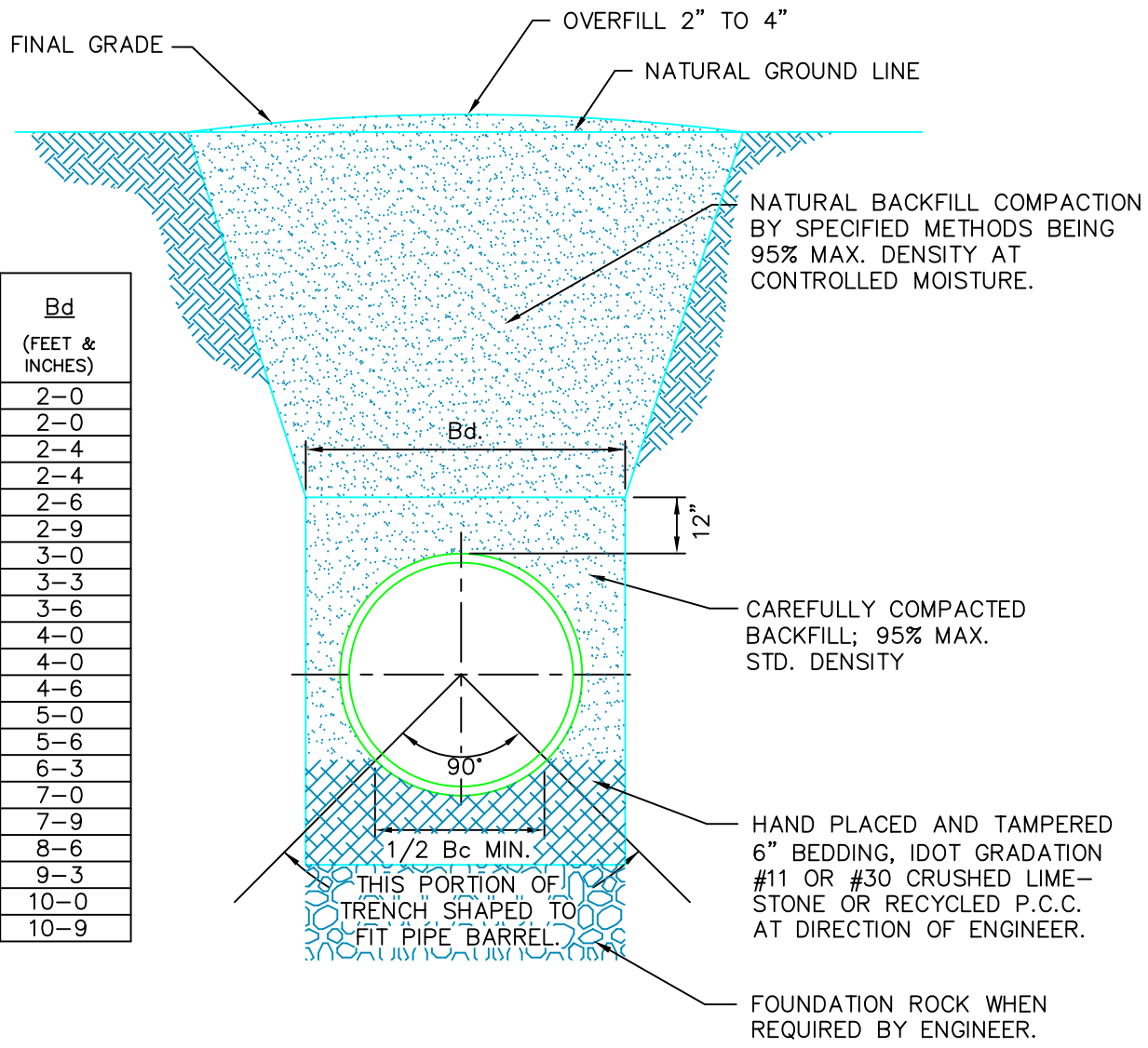
NO SCALE:

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11-08-02

REVISION
1-29-99

SEWER PIPE DIA. (INCHES)	Bd (FEET & INCHES)
4	2-0
6	2-0
8	2-4
10	2-4
12	2-6
15	2-9
18	3-0
21	3-3
24	3-6
27	4-0
30	4-0
33	4-6
36	5-0
42	5-6
48	6-3
54	7-0
60	7-9
66	8-6
72	9-3
78	10-0
84	10-9



NOTES

1.) MANUFACTURED BACKFILL IDOT GRADATION #11 OR #30 CRUSHED LIMESTONE OR RECYCLED P.C.C. EQUIVALENT TO CLASS I ASTM 2312.

2.) NATURAL BACKFILL ON SITE SOILS MEETING CLASS III OR CLASS IV ASTM 2321.

3.) FOUNDATION ROCK 2 1/2" CLEAN CRUSHED LIMESTONE MATERIAL.

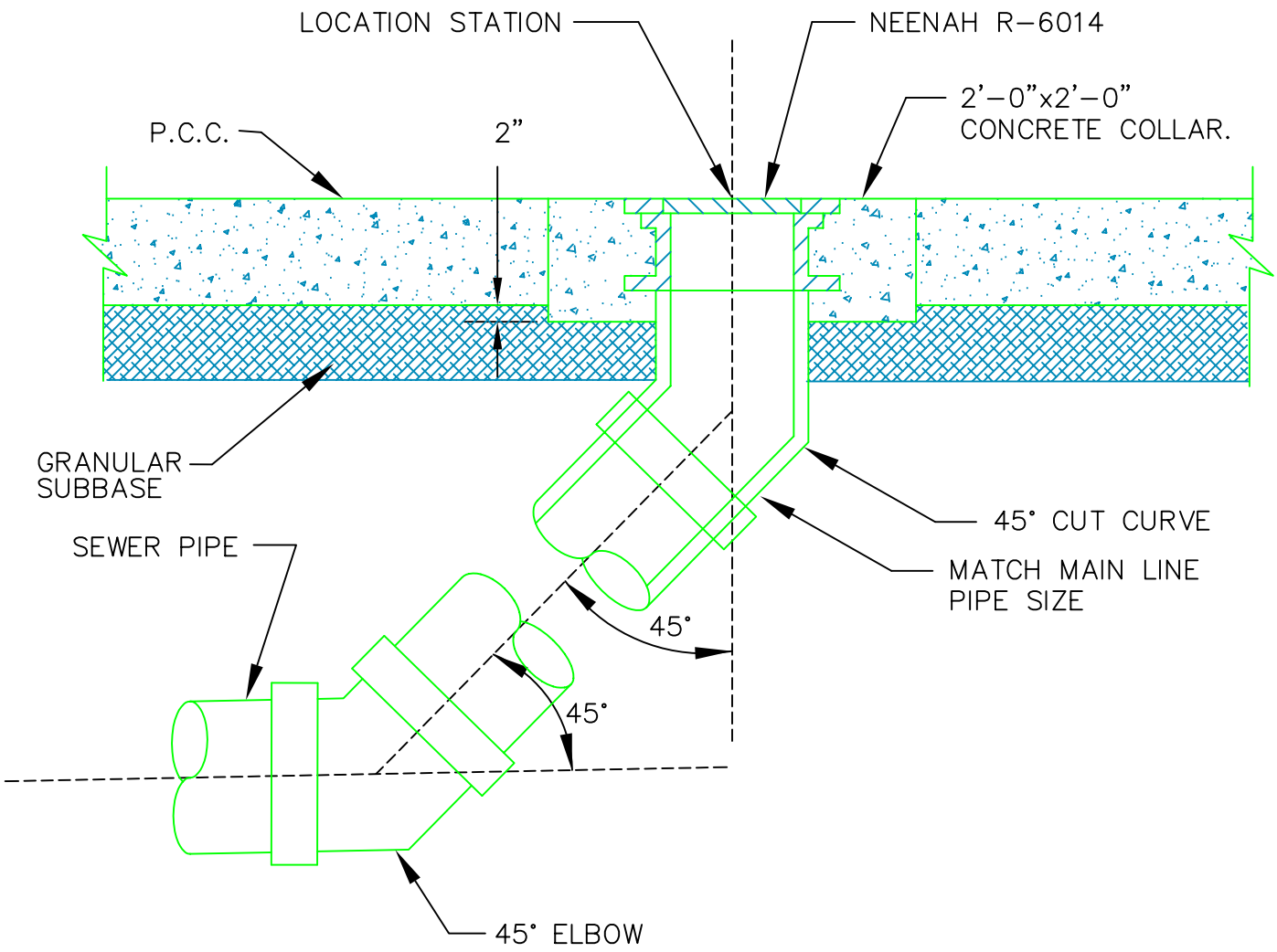
4.) Bc = OUTSIDE DIAMETER OF PIPE BARREL

RCP AND DIP ENVELOPE AND TRENCH DETAIL

NO SCALE:

CITY OF COUNCIL BLUFFS
PUBLIC WORKS

DATE
11-08-02
REVISION



SANITARY SEWER CLEANOUT

NO SCALE:

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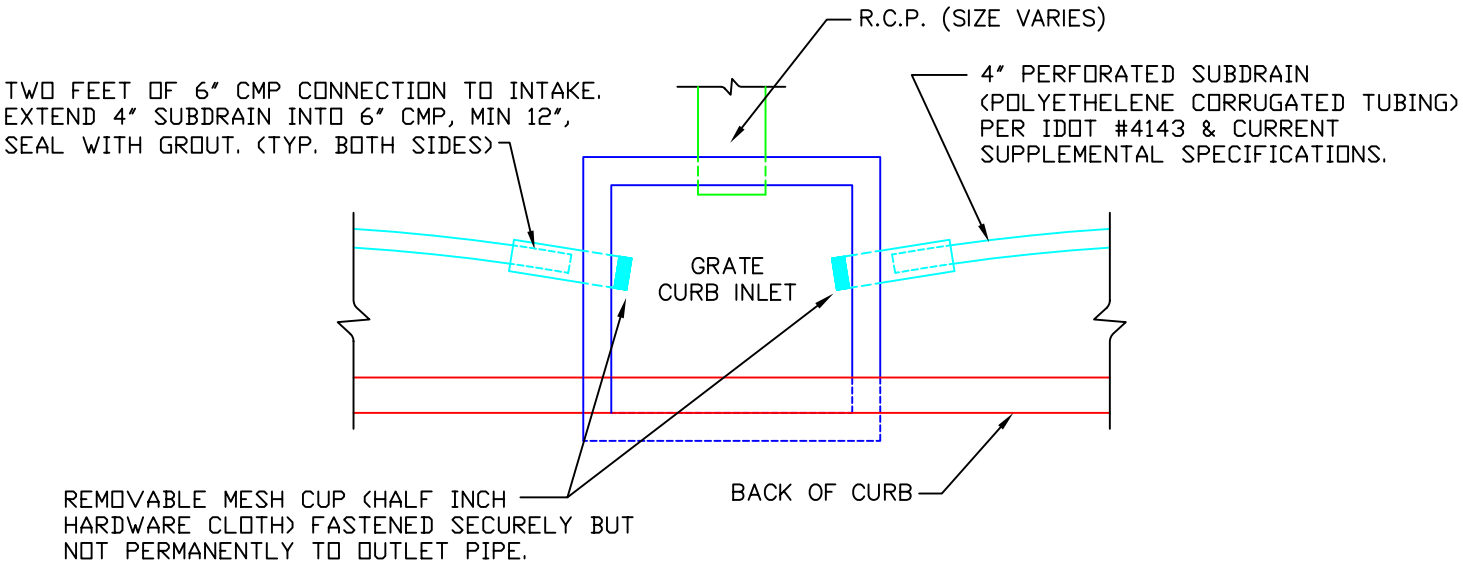
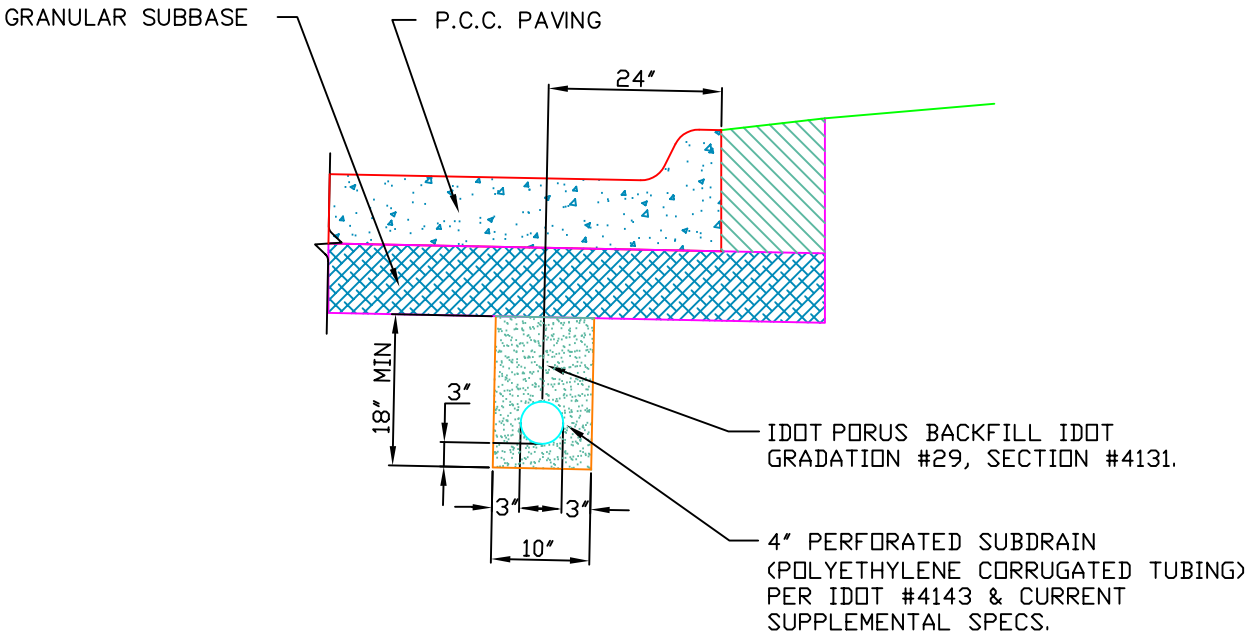
DATE
11-15-02

REVISION
8-29-97



PLAN VIEW AT CURB INLET



SECTION (TYPICAL EACH SIDE OF STREET)

NOTES:

1. POROUS BACKFILL IS CONSIDERED INCIDENTAL TO THE LINEAL FOOT COST FOR LONGITUDINAL SUBDRAIN.

2. PERFORATED POLYETHYLENE SUBDRAIN SHALL COMPLY W/ CURRENT IDOT SUPPLEMENTAL SPECIFICATIONS.

LONGITUDINAL SUBDRAIN

NO SCALE:

sheet 1of1

CITY OF COUNCIL BLUFFS
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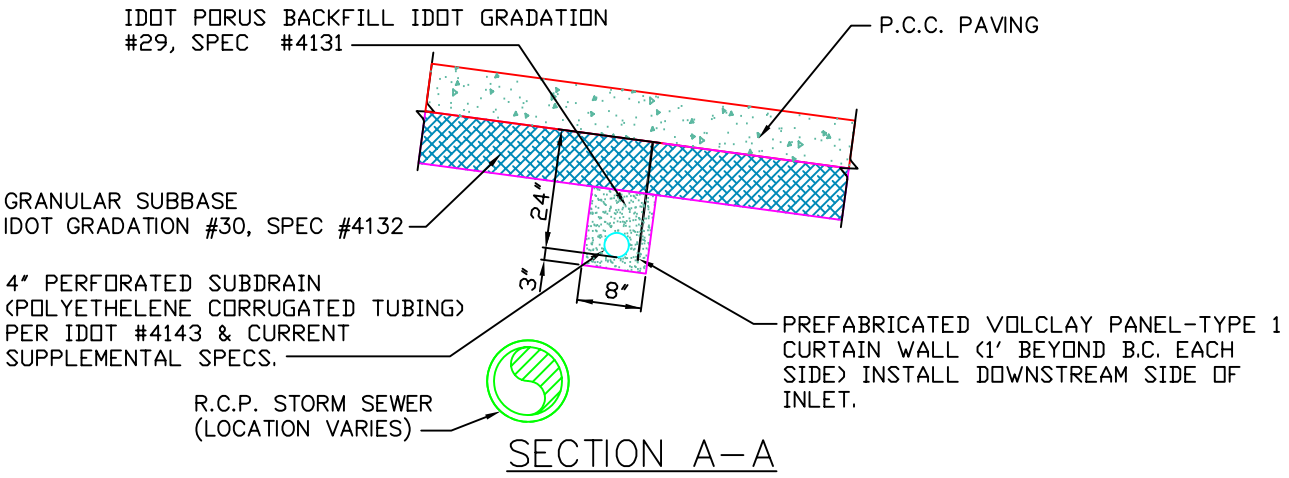
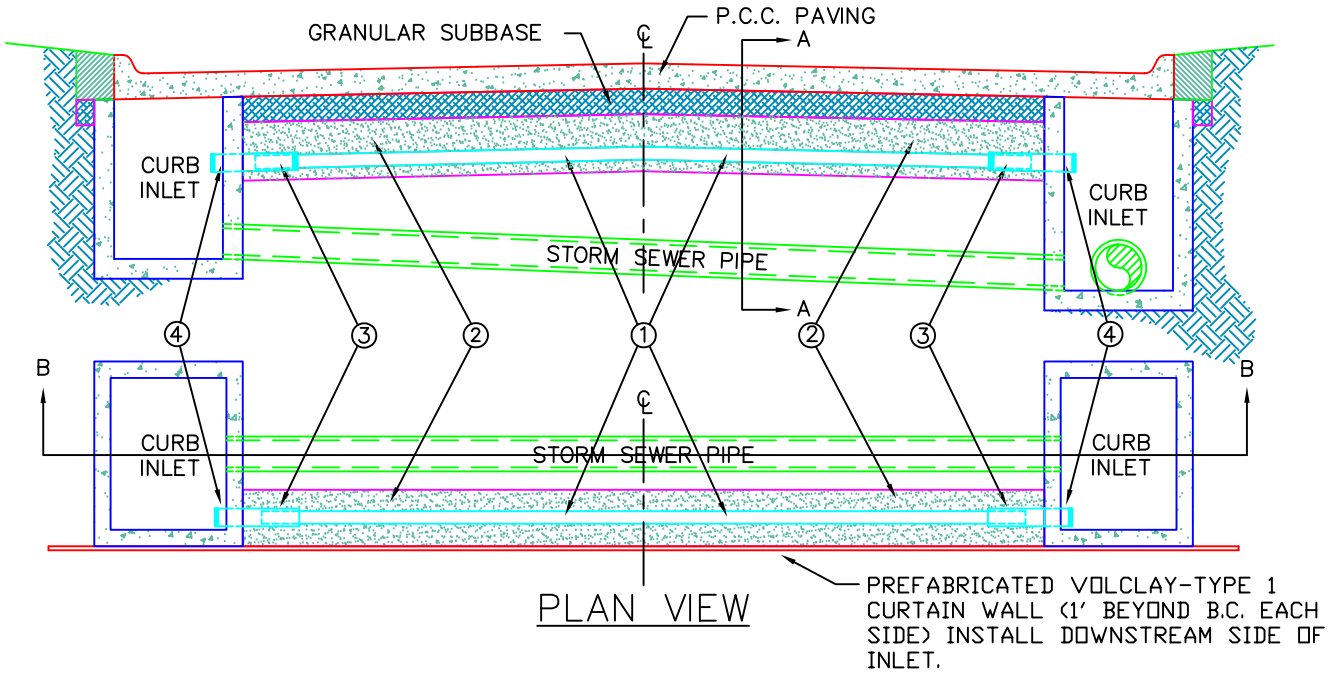
11-15-02

REVISION
8-29-97



SECTION A-A

SECTION B-B



PLAN VIEW

① 4" PERFORATED SUBDRAIN (POLYETHELENE CORRUGATED TUBING) PER IDOT #4143 & CURRENT SUPPLEMENTAL SPECIFICATIONS.

② IDOT PORUS BACKFILL IDOT GRADATION #29, SECTION #4131.

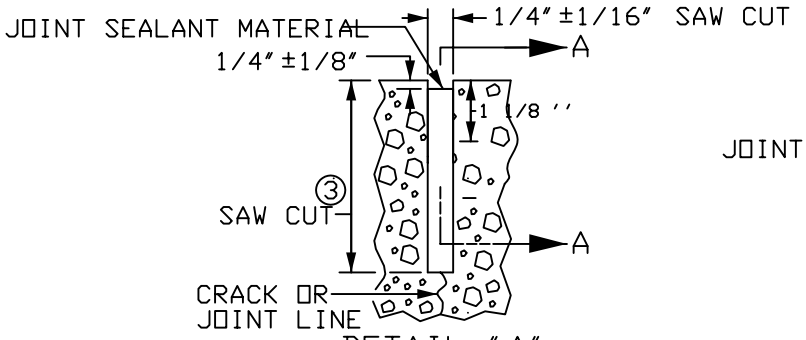
③ TWO FEET OF 6" CMP CONNECTION TO INTAKE. EXTEND 4" SUBDRAIN INTO 6" CMP, MIN 12", SEAL WITH GROUT.

④ REMOVABLE MESH CUP (HALF INCH HARDWARE CLOTH) FASTENED SECURELY BUT NOT PERMANENTLY TO OUTLET PIPE.

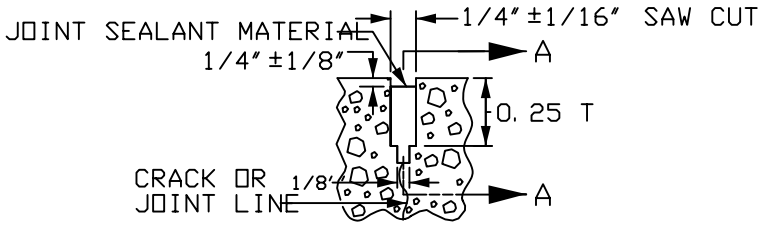
TRANSVERSE SUBDRAIN

NO SCALE:

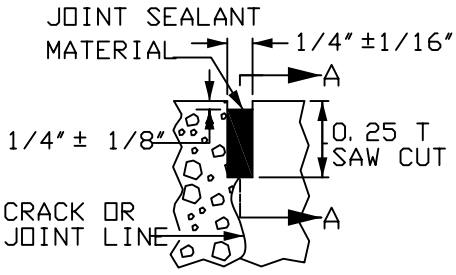
SHEET 1OF1



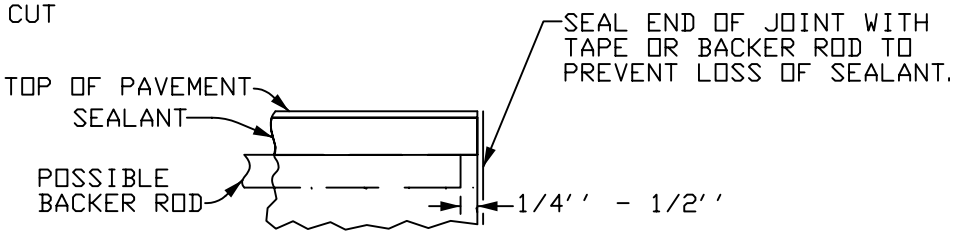
DETAIL ″A″
HOT POUR SEALANT
(SAWCUT FORMED BY CONVENTIONAL CONCRETE SAWING EQUIPMENT)



DETAIL ″B″
HOT POUR SEALANT
(SAWCUT FORMED BY APPROVED EARLY CONCRETE SAWING EQUIPMENT)



DETAIL ″C″
HOT POUR SEALANT



SECTION A-A
DETAIL AT EDGE OF PAVEMENT

NOTES:

(1) FREE MOVING ENDS OF DOWEL SUPPORT ASSEMBLY SHALL BE PLACED ALTERNATELY ACROSS JOINTS.

(2) REFER TO BAR SIZE TABLE

(3) DEPTH OF SAWCUT SHALL BE T/4.

(4) 'DW' JOINT SHALL BE LOCATED AT A MIDPANEL LOCATION BETWEEN FUTURE 'C' OR 'CD' JOINTS. IT SHALL BE NO CLOSER THAN 5'-0″ TO A 'C' OR 'CD' JOINT.

(5) BARS IN TRANSVERSE JOINTS SHALL BE PLACED SO THAT NO BAR WILL BE CLOSER THAN 6″ TO ANY LONGITUDINAL JOINT (CENTERLINE OR LANELINE). THE DISTANCE TO THE FIRST BAR FROM EDGE OF PAVEMENT WILL VARY FROM 6″ TO 12″ DEPENDING UPON PAVEMENT WIDTH.

(6) JOINTS SHALL BE SEALED ACCORDING TO THE STANDARD AND SUPPLEMENTAL SPECIFICATIONS ON ″SEALING JOINTS″.

(7) EDGE WITH 1/4″ TOOL FOR LENGTH OF JOINT INDICATED IF FORMED; EDGING NOT REQUIRED WHEN CUT WITH DIAMOND BLADE SAW. REMOVE HEADER BLOCK AND BOARD WHEN SECOND SLAB IS POURED.

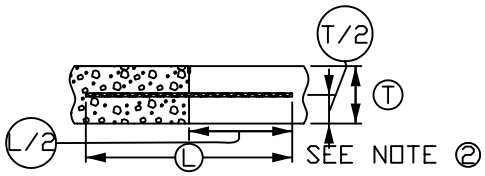
(8) PLACEMENT OF DOWELS OR TIE BARS SHALL BE IN ACCORDANCE WITH SECTION 7010, 3.04 F.

(9) WHEN TIEING INTO OLD PAVEMENT, T REPRESENTS THE DEPTH OF SOUND PORTLAND CEMENT CONCRETE.

(10) UNLESS OTHERWISE SPECIFIED, TRANSVERSE CONTRACTION JOINTS IN MAINLINE PAVEMENT SHALL BE 'CD' WHEN T IS GREATER OR EQUAL TO 8″. 'C' WHEN T IS LESS THAN 8″.

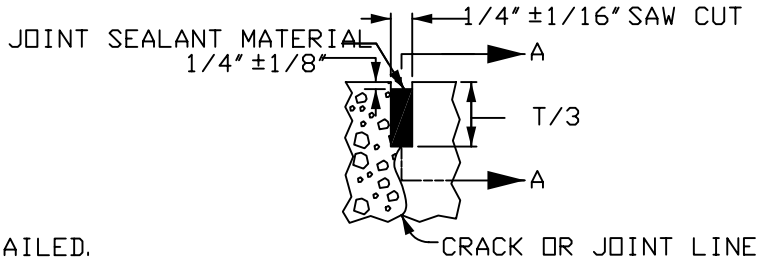
(11) 'RT' JOINT MAY BE USED IN LIEU OF 'DW' JOINT AT THE END OF THE DAYS WORK. ANY PAVEMENT DAMAGED DUE TO THE DRILLING SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE.

REV.	DATE	BY	TRANSVERSE JOINT DETAIL	
1	10/25/02			
DATE: 11-15-02				SHEET 2 OF 2

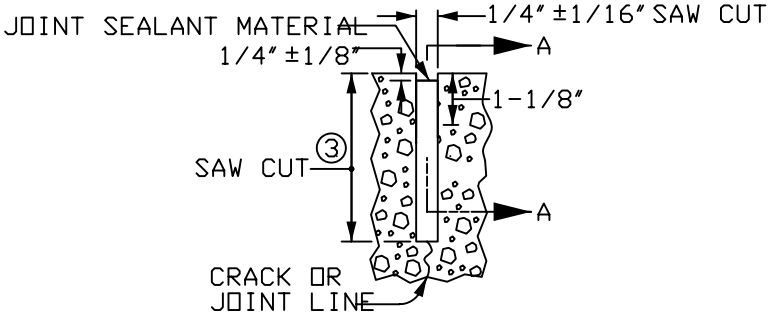


TYPICAL TIE BAR PLACEMENT

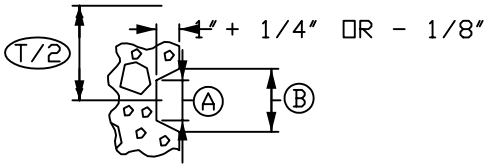
APPLIES TO ALL JOINTS UNLESS OTHERWISE DETAILED.



DETAIL "B"
HOT POUR SEALANT

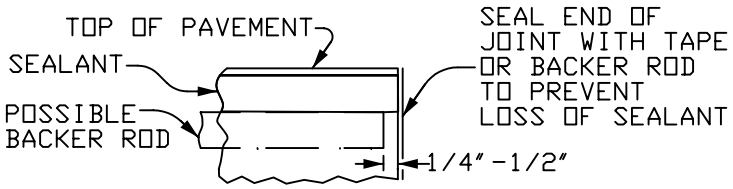


DETAIL "A"
HOT POUR SEALANT



DETAIL ''C''

KEYWAY DIMENSIONS			
KEWAY TYPE	PAVEMENT THICKNESS	Ⓐ	Ⓑ
STANDARD	8" OR GREATER	1-3/4"	2-3/4"
NARROW	LESS THAN 8"	1"	2"



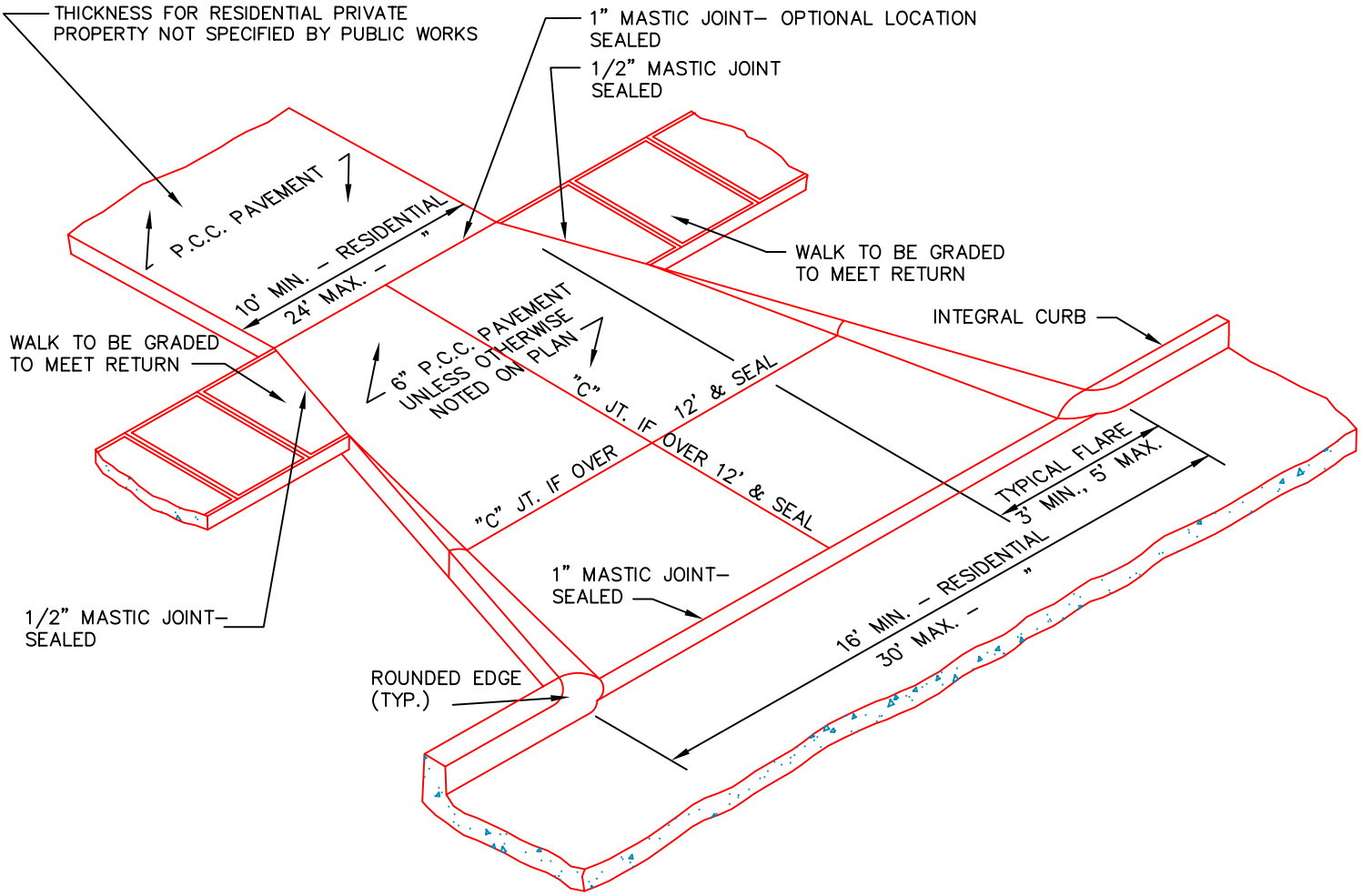
SECTION A-A
DETAIL AT EDGE OF PAVEMENT

NOTES:

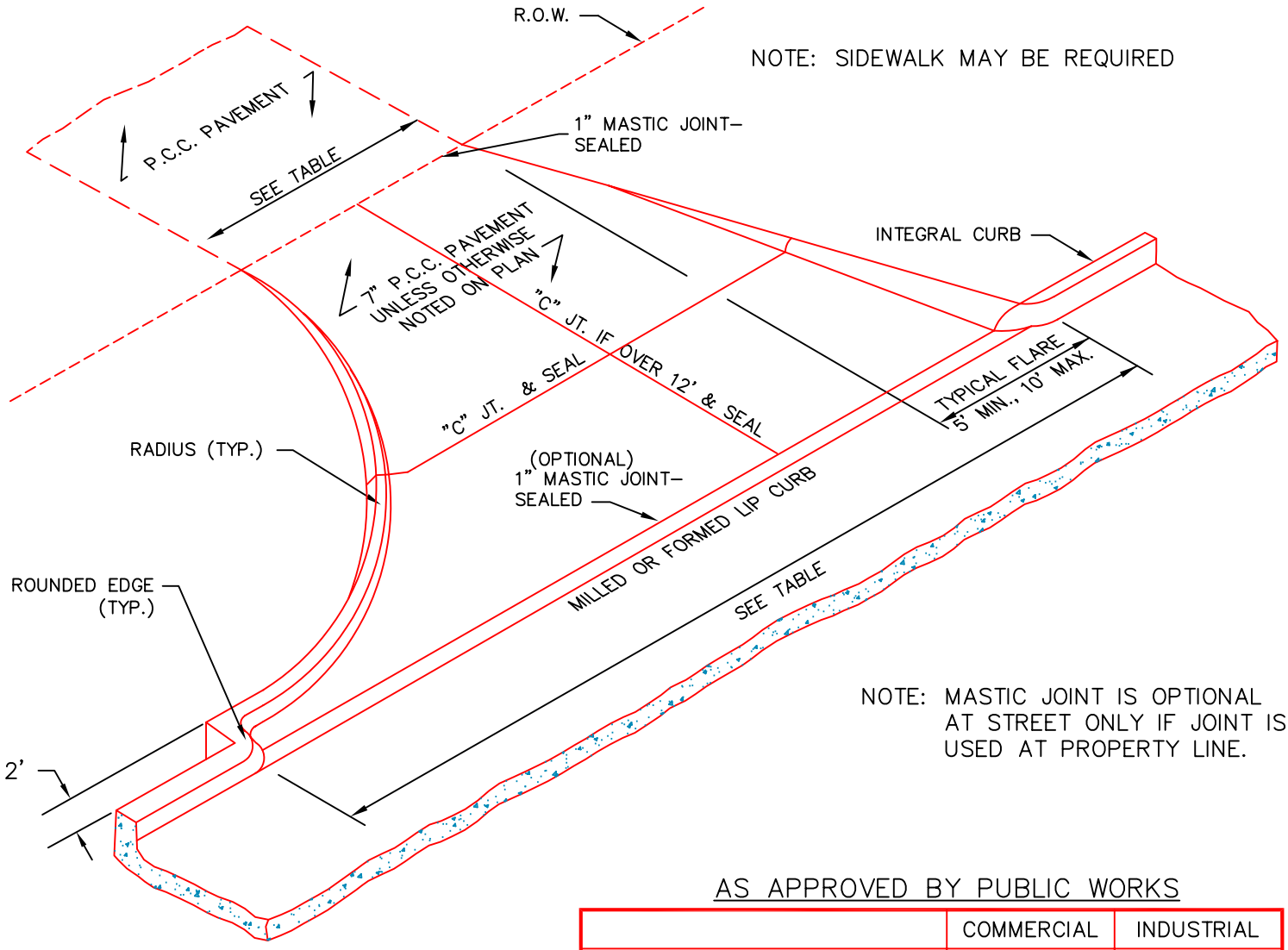
1. BAR SUPPORTS MAY BE NECESSARY FOR FIXED FORM PAVING, SUBJECT TO THE JURISDICTIONAL ENGINEER'S APPROVAL, TO INSURE THE BAR REMAINS IN A HORIZONTAL POSITION IN THE PLASTI CONCRETE.
2. WHEN TIEING INTO OLD PAVEMENT, T REPRESENTS THE DEPTH OF SOUND PORTLAND CEMENT CONCRETE.
3. DEPTH OF SAWCUT SHALL BE T/3.
4. PLACEMENT OF DOWELS OR TIE BARS SHALL BE IN ACCORDANCE WITH SECTION 7010, 3.04. EPOXY FOR ANCHORING BARS INTO EXISTING PAVEMENT SHALL BE IN ACCORDANCE WITH SECTION 7010, 2.02 D.
5. THE FOLLOWING JOINTS ARE INTERCHANGEABLE, SUBJECT TO THE POURING SEQUENCE:
   'BT-1' AND 'L-1'
   'KT-2' AND 'L-2'
   'KT-3' AND 'L-3'

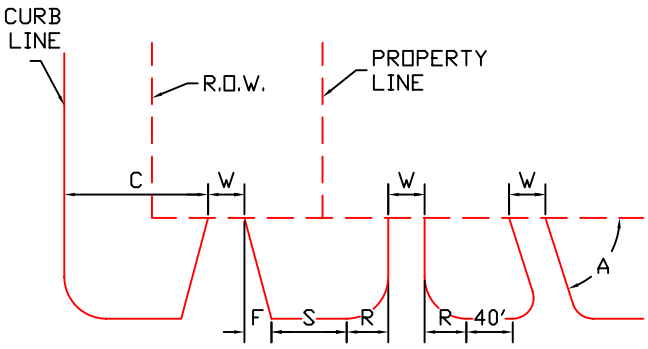
REV.	DATE	BY	LONGITUDIAL JOINT DETAIL	
1	10/25/02			
DATE: 01-01-98				SHEET 2 OF 2

CITY OF COUNCIL BLUFFS
PUBLIC WORKS



REV.	DATE	BY	CURB DROP DETAIL RESIDENTIAL	
DATE: 11-14-02				SHEET 1 OF 1

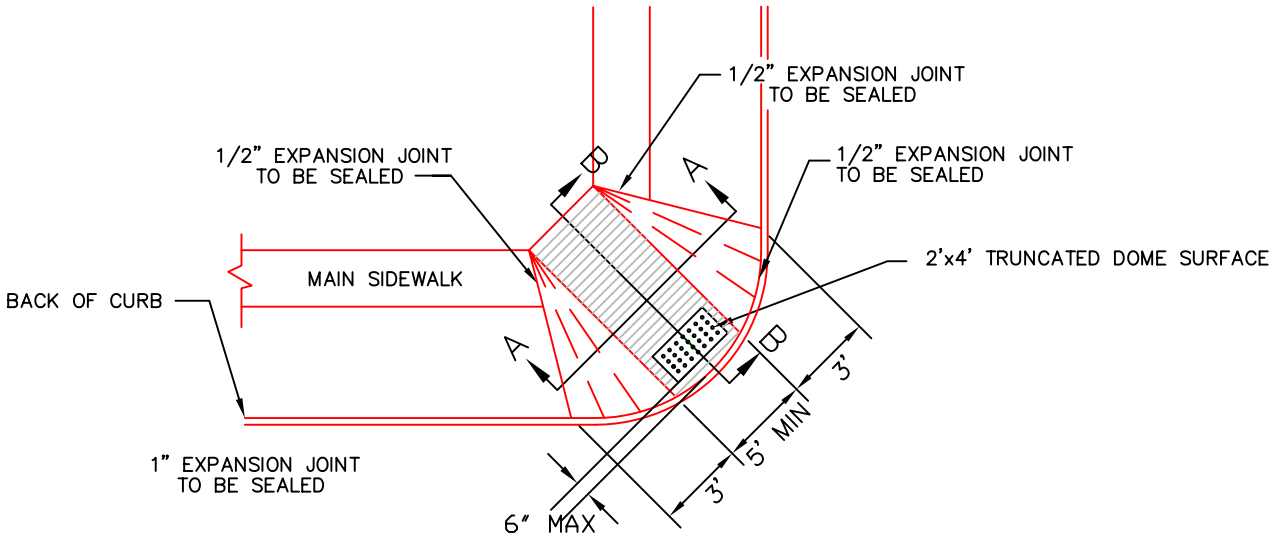




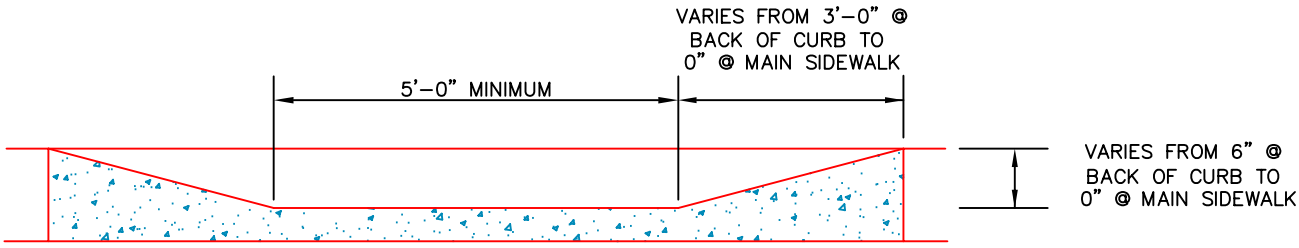
AS APPROVED BY PUBLIC WORKS

	COMMERCIAL	INDUSTRIAL
WIDTH – W MINIMUM MAXIMUM	(1–WAY)(2–WAY) 12' 25' 16' 35'	 20' 40'
RADIUS OR FLARE MINIMUM MAXIMUM	FLARE,F RADIUS,R 5' 10' 10' 20'	RADIUS,R 20' 30'
ANGLE – A DESIRABLE MINIMUM	 90° 60°	 90° 60°
SPACING BETWEEN DRIVES ACROSS A PROPERTY LINE – S BETWEEN DRIVES ON ONE PROPERTY – S FROM CROSS STREET – C	 0 40' 50'	 0 40' 50'

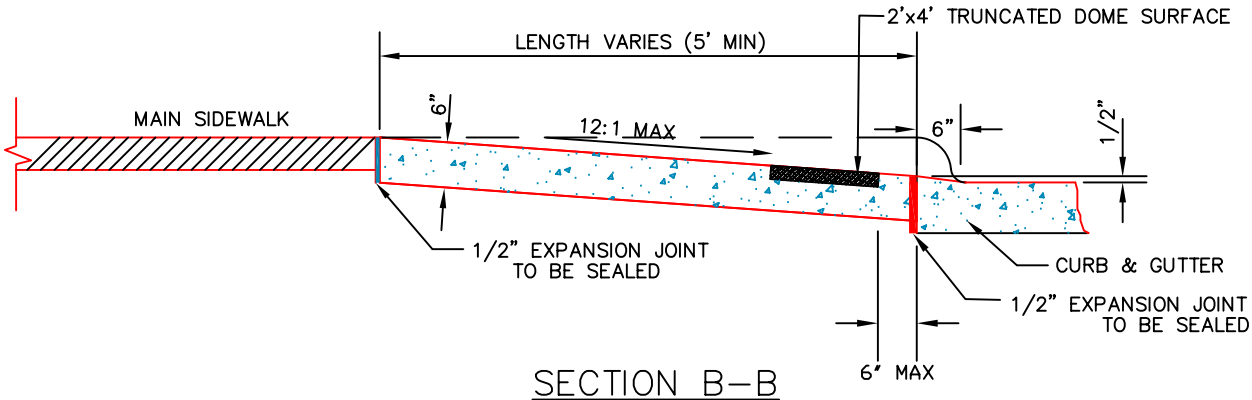
REV.	DATE	BY	CURB DROP DETAIL COMMERCIAL	
DATE: 11-14-02				SHEET 1 OF 1



PLAN VIEW



SECTION A-A

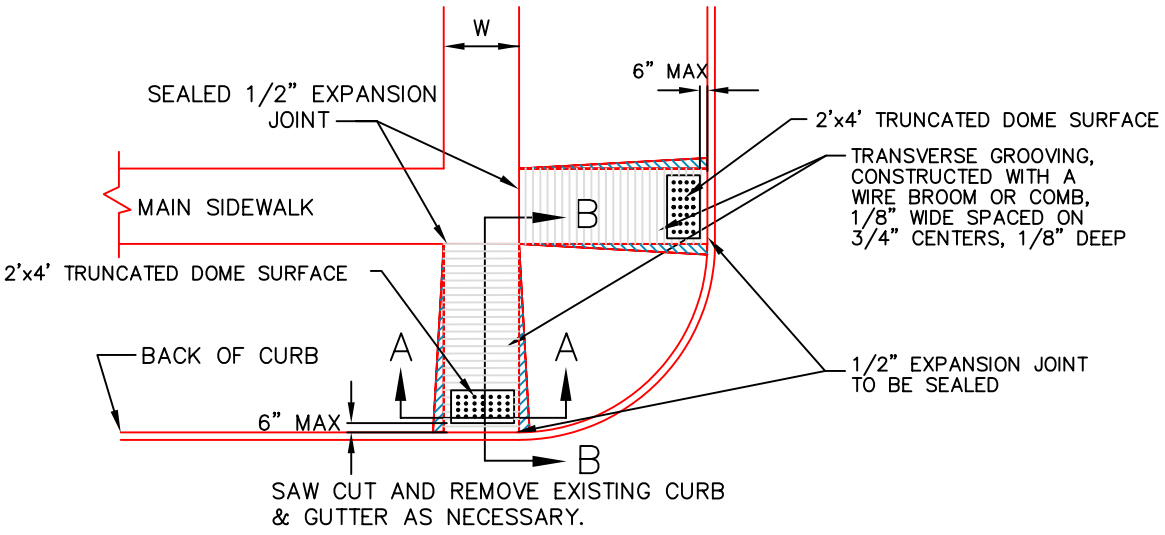


SECTION B-B

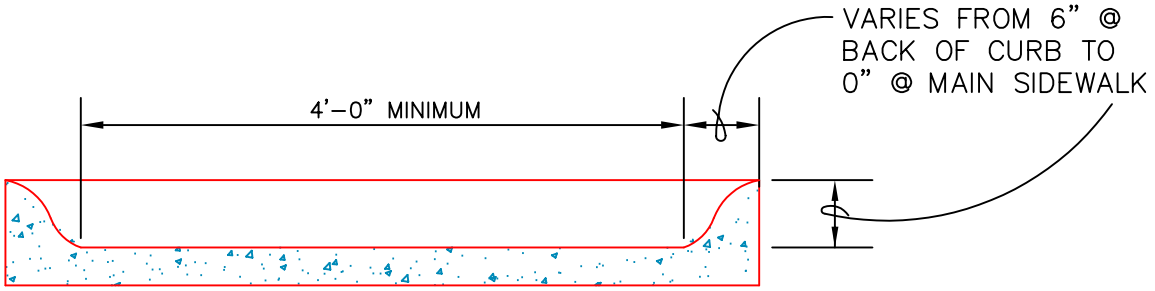
NOTES:

1.) AT DIRECTION OF CITY ENGINEER

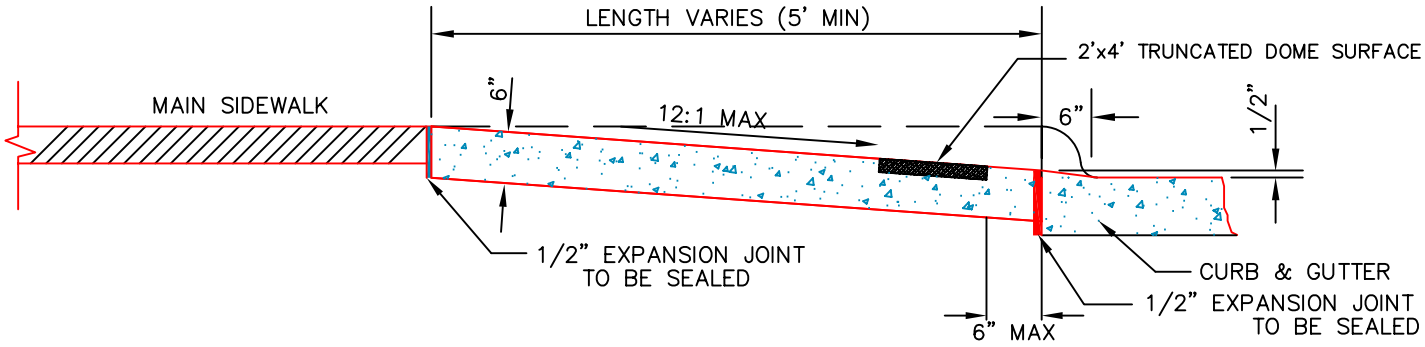
REV.	DATE	BY	TYPE 1 SIDEWALK RAMP	FIGURE:
DATE: 11-13-02				SHEET 1 OF 3



PLAN VIEW

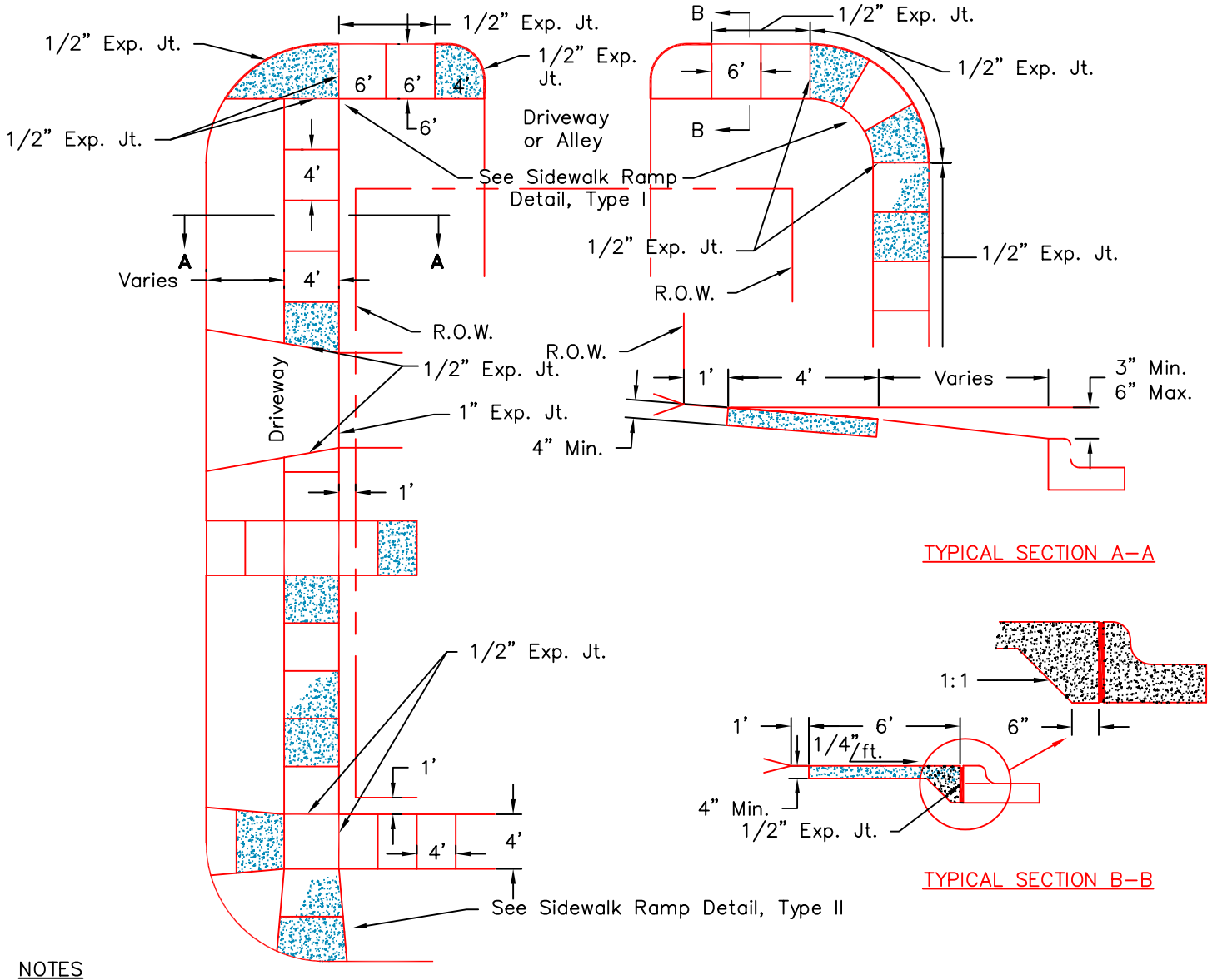


SECTION A-A



SECTION B-B

REV.	DATE	BY	TYPE 2 SIDEWALK RAMP	FIGURE:
DATE: 11-13-02				SHEET 2 OF 3



NOTES

1. One half inch expansion joints shall be placed in all sidewalks at intervals of not more than 50' and as shown where sidewalks butt against curb. If the sidewalk to be constructed is less than 50' in length one such expansion joint shall be placed as directed by the Engineer, Expansion material is also needed where sidewalks butt against buildings and\or retaining walls.
2. Sidewalk slope may be varied to suit existing conditions. Recommended min. & max. to be 1/4"/ft. and 1/2"/ ft., respectively. Variations to suit extreme conditions to be at direction of Public Works.
3. All sidewalks 5 ft. or more in width shall be scored in panels no greater than 5' in length.
4. No sidewalk repair shall be less than one complete panel.
5. Use sealing filler, hot poured type, on all expansion joints.
6. Wheelchair Ramps, see Standard Details Type I & Type II ramps, shall be constructed at all points of entry.
7. Contraction joints shall be scored to a minimum depth of T/4, where "T" is the sidewalk thickness.

REV.	DATE	BY	TYPICAL SIDEWALK DETAILS	
DATE: 11-13-02				SHEET 3 OF 3